

REMARKS

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Claim Amendments

Claim 1 has been amended to further define the laminate reheating step. Support for such amendment can be found, for example, on page 10, lines 22-24 of the specification.

No new matter has been added by this amendment.

Applicants respectfully submit that the amendment to claim 1 should be entered even though it is presented after a final rejection, since the effect of the amendment is to clearly place the application in condition for allowance, as will be apparent from the remarks set forth below.

Rejections Under 35 U.S.C. § 103(a)

In view of the current amendment, the rejection of claims 1-5, 7 and 8 under 35 U.S.C. § 103(a) as being unpatentable over Kawakami et al. (US Patent 5,853,639, hereinafter Kawakami) in view of Shiiki et al. (US Patent 6,245,437, hereinafter Shiiki) in view of non-patent literature entitled “Polymers.htm” is respectfully traversed.

Kawakami discloses a process for producing a stretched PGA (polyglycolic acid) film, which includes the steps of melt-extruding a PGA material in a temperature range exceeding the T_m (melting point), quenching the extrudate, and stretching the extrudate in a temperature range of from T_g (glass transition temperature) to T_{c1} (crystallization temperature) of the PGA material. See col. 4, lines 15-25 of Kawakami. This is a conventional cold parison (or preform) process for stretching a once-quenched and re-heated parison at a temperature between T_g and T_{c1} . Kawakami discloses that the reason for this temperature range is that when, in contrast, an amorphous sheet of PGA “is crystallized at a temperature exceeding its crystallization temperature T_{c1} (about 80°C)... the biaxial stretching of the amorphous sheet... is extremely difficult or actually impossible under such stretching conditions...” See column 2, lines 57 – 64 of Kawakami. This is in line with the disclosure at page 4, lines 15 – 17 of “Polymers.htm,” which teaches that “Increased crystallinity is associated with an increase in rigidity”, thus making stretching difficult.

Furthermore, Kawakami repeatedly describes the temperature range for stretching the extrudate as from T_g to T_{c1} (generally $30 - 120^{\circ}\text{C}$), preferably from T_g to $(T_g + 10^{\circ}\text{C})$ (generally $30 - 48$ (or 58) $^{\circ}\text{C}$). See col. 13, lines 50 – 52; col. 14, lines 19 – 21; col. 14, lines 41 – 43 of Kawakami. Indeed, the stretching temperatures in all of the Examples of Kawakami are in the range of $42 - 50^{\circ}\text{C}$. By contrast, Comparative Example 3 of Kawakami discloses a stretching temperature of 160°C , which exceeds T_{c1} (about 80°C), and describes stretching as “naturally impossible”.

Thus, Kawakami completely teaches away from achieving an increased haze in the PGA resin layer (associated with increased crystallization, which also obstructs subsequent stretching as confirmed by “Polymers.htm”) before stretching the PGA resin as contemplated by the present invention. This is because Kawakami completely fails to recognize the unexpected effect of crystal stretching a polyglycolic acid resin layer in a multilayer resin laminate, as described on page 3, line 16 to page 4, line 10 of the present specification. Particularly, the present inventors discovered that the crystallization of the PGA layer before stretching actually enhances the smooth stretching of the resin laminate having a PGA resin layer. Moreover, the adverse effect thereof of whitening (opacification) can be removed by rearranging the molecular chains during the crystal stretching, thus rendering the product capable of forming a transparent stretched laminate film.

Shiiki has been cited as teaching the incorporation of a PGA layer into a laminate sheet. However, Shiiki does not teach or suggest the unexpected effect of crystal stretching a laminate resin sheet having at least one polyglycolic resin layer as achieved by the present invention. Therefore, Shiiki fails to remedy the deficiency of Kawakami and “Polymer.htm”, and accordingly, even if the references were combined in the manner suggested by the Examiner, the result of such combination would still not suggest the presently claimed invention.

Conclusion

Therefore, in view of the foregoing amendments and remarks, it is submitted that the ground of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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/Chao Gao/

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